

Product Data Sheet

Product Name: Tropifexor

Cat. No.: GC19363

Chemical Properties

Cas. No. 1383816-29-2

SMILES FC(F)

(F)OC(C=CC=C1)=C1C2=NOC(C3CC3)=C2CO[C@@H]4C[C@H]5N(C6=NC7=C(F)C=C(C(O)=O)C=C7S6)[C@H](CC5)C4

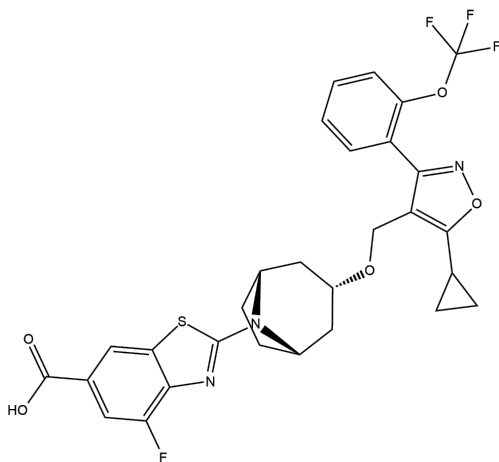
Formula C₂₉H₂₅F₄N₃O₅S M.Wt 603.58

Solubility DMSO : ≥ 80.66 mg/mL (133.64 mM) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines Calu-3 cells

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Preparation Method Calu-3 cells were grown in minimal Eagle's medium supplemented with 1% nonessential amino acids, 1% penicillin/streptomycin, and 10% heat-inactivated fetal bovine serum (FBS) in 384-well plates at 37°C in an incubator with 5% CO₂. SARS-CoV-2 diluted in a serum-free growth medium is added to plates to achieve an MOI = 0.5. Cells are incubated continuously with different concentrations of Tropifexor (0, 0.1, 1, 10, and 100µM) and SARS-CoV-2 for 48h. Cells are fixed and then immune-stained with anti-dsRNA (J2), and nuclei are counterstained with Hoechst 33342 for automated microscopy. Automated image analysis quantifies the number of cells per well (toxicity) and the percentage of infected cells (dsRNA+ cells/cell number) per well.

Reaction Conditions 0, 0.1, 1, 10, and 100µM; 48h

Applications Tropifexor treatment significantly reduced SARS-CoV-2 infection in Calu-3 cells in a dose-dependent manner.

Animal experiment [2]:

Animal models Male C57BL/6J mice

Preparation Method 2-day-old male C57BL/6J mice were injected with streptozotocin (STZ) and placed on a high-fat diet (HFD) from weeks 4 to 12 (HFD-32). From weeks 9 to 12, mice received 0.3mg/kg of Tropifexor (p.o.) or vehicle once a day. The mice were maintained in a specific-pathogen-free facility under controlled conditions of temperature (23°C±2°C), humidity (45%±10%), lighting (12-hour artificial light and dark cycles; light from 8:00 am to 8:00 pm), and air exchange. A high pressure was maintained in the experimental room to prevent contamination of the facility. The animals were housed in transparent polymer X (TPX) cages with a maximum of four mice per cage. Hematoxylin and eosin (H&E)-stained sections were evaluated for the nonalcoholic steatohepatitis activity score (NAS) according to defined criteria.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Dosage form 0.3mg/kg/day for 4 weeks; p.o.

Applications Tropifexor treatment reduced hepatic steatosis, inflammation, and fibrosis in mice.

References:

- [1] Ma C, Hu Y, Wang Y, et al. Drug-repurposing screening identified tropifexor as a SARS-CoV-2 papain-like protease inhibitor[J]. ACS infectious diseases, 2022, 8(5): 1022-1030.
- [2] Hernandez E D, Zheng L, Kim Y, et al. Tropifexor-mediated abrogation of steatohepatitis and fibrosis is associated with the antioxidative gene expression profile in rodents[J]. Hepatology communications, 2019, 3(8): 1085-1097.

Background

Tropifexor is a potent non-bile acid farnesoid X receptor (FXR) agonist with an EC₅₀ value of 0.2nM [1]. Tropifexor can induce FXR target genes at very low doses and provide systemic FXR exposure in rodents, which causes marked reduction in steatohepatitis, fibrosis, and profibrogenic gene expression [2]. Tropifexor has been widely used to treat environmental liver damage and reduce liver fat [3].

In vitro, Tropifexor treatment for 48h significantly inhibited SARS-CoV-2 infection in Calu-3 cells, with an EC₅₀ value of 4.3μM [4]. Treatment with 1μM Tropifexor for 96 hours significantly inhibited collagen deposition in hepatic stellate cells (HSCs) exposed to free fatty acids (FFA) [5].

In vivo, Tropifexor treatment via oral administration at a dose of 0.3mg/kg/day for 4 weeks significantly alleviated liver steatosis, inflammation and fibrosis in mice with non-alcoholic steatohepatitis [6]. Administering an oral dose of 1.06μg/kg/day of Tropifexor for 14 days significantly alleviated the intestinal damage caused by parenteral nutrition (PN) in neonatal piglets, including villus atrophy, increased intestinal permeability and impaired defense responses [7]. Daily intragastric administration of Tropifexor at a dose of 1.06μg/kg/day for 2 weeks inhibited liver injury, fibrosis, and ductular reaction induced by bile duct ligation in piglets [8].

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

References:

- [1] Tully D C, Rucker P V, Chianelli D, et al. Discovery of tropifexor (LJN452), a highly potent non-bile acid FXR agonist for the treatment of cholestatic liver diseases and nonalcoholic steatohepatitis (NASH)[J]. 2017.
- [2] Wang-Lakshman L, Miao Z, Wang L, et al. Evaluation of the absorption, metabolism, and excretion of a single oral 1-mg dose of tropifexor in healthy male subjects and the concentration dependence of tropifexor metabolism[J]. Drug metabolism and disposition, 2021, 49(7): 548-562.
- [3] Sanyal A J, Lopez P, Lawitz E J, et al. Tropifexor for nonalcoholic steatohepatitis: an adaptive, randomized, placebo-controlled phase 2a/b trial[J]. Nature medicine, 2023, 29(2): 392-400.
- [4] Ma C, Hu Y, Wang Y, et al. Drug-repurposing screening identified tropifexor as a SARS-CoV-2 papain-like protease inhibitor[J]. ACS infectious diseases, 2022, 8(5): 1022-1030.
- [5] Anfuso B, Tiribelli C, Adorini L, et al. Obeticholic acid and INT-767 modulate collagen deposition in a NASH in vitro model[J]. Scientific Reports, 2020, 10(1): 1699.
- [6] Hernandez E D, Zheng L, Kim Y, et al. Tropifexor-mediated abrogation of steatohepatitis and fibrosis is associated with the antioxidative gene expression profile in rodents[J]. Hepatology communications, 2019, 3(8): 1085-1097.
- [7] Zhao Y, Xiao Y, Jiang L, et al. Farnesoid X Receptor Agonist Tropifexor Improves Intestinal Defense Response and Epithelial Barrier Function in Neonatal Piglets Receiving Parenteral Nutrition[J]. The FASEB Journal, 2025, 39(19): e71108.
- [8] Xiao Y, Wang Y, Liu Y, et al. A nonbile acid farnesoid X receptor agonist tropifexor potently inhibits cholestatic liver injury and fibrosis by modulating the gut–liver axis[J]. Liver International, 2021, 41(9): 2117-2131.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA